

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial No.:	10/715,768	}	Examiner:	Torimoro, Adetokunbo
Filed:	11/18/2003	}		Olusegun
Title:	High Impact Game Ball	}		
	Construction Method and Device	}		

Commissioner for Patents
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Applicant's Appeal Brief

The Applicant most respectfully submits the present brief under 37 C.F.R. § 41.37 in support of his appeal of the rejection of each of the remaining claims in the above-referenced matter.

I. Real party in interest.

Robert Gentile, an individual, is the real party in interest in this matter.

II. Related appeals and interferences.

There are no prior or pending appeals, judicial proceedings or interferences known to the appellant which may be related to, directly affect, or be directly affected by or have a bearing on the Board's decision in this appeal.

III. Status of Claims.

A total of 62 claims were originally presented with the original application filed 11/18/2003 with claims 1, 33, and 47 standing independently. Through an amendment dated 10/04/2007, claim 36 was cancelled. In an action dated 10/24/2007, the Office again rejected the claims and made the rejections final. The Applicant replied on 01/18/2008 with proposed amendments to the claims and arguments in favor of patentability. However, the entry of those amendments was refused in an Advisory Action dated 01/31/2008. Consequently, claims 1-35 and 37-62 remain pending for consideration in this matter. All claims stand rejected, and all claims are appealed.

IV. Status of Amendments.

The Office refused entry of Applicant's post-final rejection amendments filed on 01/18/2008. Those amendments sought to amend claim 1 to make explicit that the claimed spherical casing is "concentrically disposed to envelop the spherical member" where the claim previously indicated that the spherical casing was "concentrically disposed relative to the spherical member". The Applicant also sought to amend claims 45 and 51 to specify that the means for sensing a remote activation signal comprises a "means for sensing an infrared activation signal".

V. Summary of claimed subject matter.

Independent claims 1, 33, and 47 are presented on appeal.

Independent Claim 1

Claim 1 seeks to protect a high impact game ball that comprises the following:

“a core structure comprising a spherical member with an outer surface;”

[The core structure is first referenced on p. 8, line 5, and is indicated at 12 in each of FIGS. 1-7.]

“a spherical casing concentrically disposed relative to the spherical member of the core structure wherein the spherical casing has an inner surface and an outer surface;”

[The spherical casing is first referenced on p. 8, line 16, and is indicated at 26 in each of FIGS. 1 and 3-7.]

“at least one surface deviation disposed relative to the outer surface of the spherical member of the core structure;”

[The at least one surface deviation disposed relative to the outer surface of the spherical member is initially described on p. 8, line 16, and is indicated at 22 in each of FIGS. 1-7.]

“at least one corresponding surface deviation disposed relative to the inner surface of the spherical casing in a mating relationship with the at least one surface deviation disposed relative to the spherical member of the core structure whereby the at least one surface deviation and the at least one corresponding surface deviation are interposed between the spherical member of the core structure and the spherical casing.”

[The at least one corresponding surface deviation disposed relative to the inner surface of the

spherical casing is first referenced on p. 8, line 18, and is indicated at 23 in each of FIGS. 1-7.]

Independent Claim 33

Claim 33 is directed to a game ball comprising:

a spherical member;

[The spherical member of the core structure is first referenced on p. 8, line 6, and is indicated at 14 in each of FIGS. 1-7.]

a switching arrangement embedded in the spherical member wherein the switching arrangement comprises a means for sensing an activation condition relative to the switching arrangement, a means for triggering a response upon an occurrence of the activation condition, and a means for exhibiting the response based on the occurrence of the activation condition;

[The switching arrangement is first referenced on p. 8, line 7, and is indicated at 15 in each of FIGS. 1-7.]

an elongate probe adapted to be received into the access conduit;

[The claimed elongate probe is shown in FIG. 7 at 31 and is described beginning on p. 16, line 2.]

a means for passing power through the elongate probe whereby the elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact game ball; and

[The means for passing power through the elongate probe is referenced at p. 16, line 20, and is indicated at 33 in FIG. 7.]

an access conduit with a proximal end adjacent to the switching arrangement and a distal end in communication with an exterior surface of the game ball.

[The access conduit is first described at p. 15, line 20, and is indicated at 29 in FIGS. 6 and 7.]

Independent Claim 47

Independent claim 47 seeks to protect a method for constructing a high impact game ball comprising the following steps:

forming a spherical member to form a core structure wherein the spherical member has an outer surface;

[The step of forming a spherical member is described, for example, on p. 4, line 3, and on p. 8, line 5.]

forming a spherical casing to envelop the spherical member of the core structure in a concentric relationship wherein the spherical casing has an inner surface and an outer surface;

[The step of forming the spherical casing is described, for example, beginning on p. 9, line 7.]

forming at least one surface deviation relative to the outer surface of the spherical member of the core structure;

[The formation of the at least one surface deviation is described beginning on p. 8, line 16.]

forming at least one corresponding surface deviation relative to the inner surface of the spherical casing wherein the at least one corresponding surface deviation relative to the spherical casing is disposed in a mating relationship with the at least one surface deviation disposed relative to

the spherical member of the core structure whereby the at least one surface deviation and the at least one corresponding surface deviation are interposed between the spherical member of the core structure and the spherical casing.

[The formation of the at least one corresponding surface deviation is described beginning on p. 8, line 18.]

Dependent Claims Separately Argued Including Means Clauses: 10-14, 45, 46, 51, and 52

Dependent claims **10-14, 45, 46, 51, and 52** are argued separately and include means plus function and/or step plus function language as permitted by 35 U.S.C. 112, sixth paragraph. The structure, material, or acts described in the specification as corresponding to each claimed function are set forth below with reference to the specification by page and line number, and to the drawings by reference characters.

Claims 10-12, 45, 46, 51, and 52: “means for sensing an activation condition comprises a means for sensing a remote activation signal”, “means for sensing an infrared activation signal”, “means for sensing a sound signal.”: The “switching mechanism 15” in the drawings is described, for example, beginning on p. 4, line 19, as including activation by infrared or sound signals and on p. 13, line 10, and as including an “infrared or other wireless activation mechanism” or as being “sound activated” on p. 13, line 17.

Claims 13 and 14: “means for exhibiting a response based on the occurrence of the activation condition comprises a light source” and “means for exhibiting a response based on the occurrence of the activation condition comprises a sound source”.: Referenced, for example, on p.

13, line 20: "The activated mechanism, whether the light sources 18, the sound source 19, or any other indicator or signal"

VI. Grounds of rejection to be reviewed on appeal.

- Whether claims 1-9, 26-35, 37, 41-44, 47, 49, 50, 53-56, and 62 are rendered unpatentable under 35 U.S.C. 103(a) by U.S. Patent No. 6,042,487 to Schrimmer et al. in view of U.S. Patent No. 5,066,011 to Dykstra et al.
- Whether claims 10-14, 44-46, 51, and 52 are unpatentable over Schrimmer et al. and Dykstra et al. when combined with U.S. Patent Application Publication No. 2005/00055873 of Gick and United States Patent Application Publication No. 2002/0173378 of Tinsman.
- Whether claims 15-21, 48, and 57-59 are unpatentable in light of Schrimmer et al., Dykstra et al., Tinsman, and U.S. Patent No. 3,426,121 to Faulkner.
- Whether claims 22-25, 38-40, 60, and 61 are obvious in light of Schrimmer and Dykstra et al. when combined with U.S. Patent No. 3,426,121 to Cavallaro et al. and U.S. Patent No. 4,463,951 to Kumasaka et al.

VII. Argument.

Claims 1-9, 26-35, 37, 41-44, 47, 49, 50, 53-56, and 62 were rejected as unpatentable over U.S. Patent No. 6,042,487 to Schrimmer et al. in view of U.S. Patent No. 5,066,011 to Dykstra et al. Claims 10-14, 44-46, 51, and 52 were rejected as unpatentable over Schrimmer et al. and Dykstra et al. when combined with U.S. Patent Application Publication No. 2005/00055873 of Gick and United States Patent Application Publication No. 2002/0173378 of Tinsman. Still further, claims 15-21, 48, and 57-59 were rejected as unpatentable in light of the combined references of Schrimmer et al., Dykstra et al., Tinsman, and U.S. Patent No. 3,426,121 to Faulkner. Claims 22-25, 38-40, 60, and 61 were rejected as obvious in light of Schrimmer and Dykstra et al. when combined with U.S. Patent No. 3,426,121 to Cavallaro et al. and U.S. Patent No. 4,463,951 to Kumasaka et al.

For the reasons discussed below, it is respectfully submitted that allowance of all pending claims is warranted.

Independent Claims 1 and 47: High Impact Ball with Spherical Member with Surface Deviation and Spherical Casing with Corresponding Surface Deviation

Independent claims 1 and 47 were rejected as unpatentable over U.S. Patent No. 6,042,487 to Schrimmer et al. in view of U.S. Patent No. 5,066,011 to Dykstra et al. Rejected claim 1 requires, among other things, “at least one surface deviation” disposed “relative to the outer surface of the spherical member of the core structure” and “at least one corresponding surface deviation disposed relative to the inner surface of the spherical casing in a mating relationship” With this, as claim 1 specifies, “the at least one surface deviation and the at least one corresponding surface deviation

are interposed between the spherical member of the core structure and the spherical casing”. Contrary to the Office’s apparent position during examination, neither Shrimmer, nor Dykstra, nor any combination thereof teaches or renders obvious providing a core structure with a *spherical* member having at least one surface deviation disposed on the outer surface thereof disposed within a spherical casing that has at least one corresponding surface deviation disposed relative to the inner surface thereof.

The “dimples 44” of Shrimmer referenced by the Office are disposed only on the “shell portion 40”—not relative to a core structure—and, just as notably, only to the outside surface of the “shell portion 40”—not relative to the outer surface of an encased spherical core structure. While Applicant’s claim 1 demands that the mating surface deviations are interposed between the spherical member and the spherical casing, Shrimmer has no corresponding structure. The “dimples 44” on the outer surface in Shrimmer teach nothing in relation to Applicant’s mating surface deviations.

Indeed, Shrimmer would more properly be read to teach away from the claimed game ball with a core structure “comprising a spherical member”. The core portion in Shrimmer is unmistakably disk shaped. Therefore, from Shrimmer, one skilled in the art would be taught to create a disk shaped “core portion 34”, not the “spherical member” core structure that is specifically claimed by Applicant. The difference is more than one merely of form. A game ball with Shrimmer’s disk shaped “core portion 34” would have markedly different performance characteristics than a game ball with Applicant’s claimed “spherical member” core structure, particularly under the high impact conditions for which Applicant’s game ball was created. Amended method claim 47 and the claims that depend therefrom are allowable based on the same

arguments.

Also, based on the Office's rejections of 10/24/2007 founded on Schrimmer et al. and Dykstra et al., it appears that the Office misunderstood what the Applicant was seeking to claim in claims 1 and 47. While the Applicant again submits that the claims were clear in this regard as originally written, the un-entered amendment to claim 1 would make it more explicit that the claimed game ball has a "spherical casing" that is "concentrically disposed *to envelop* the spherical member of the core structure". (Emphasis supplied.) Method claim 47 already provides for the step of "forming a spherical casing to envelop the spherical member of the core structure in a concentric relationship".

In each of claim 1, even without the proposed amendment, and claim 47, therefore, it is clear that the claimed "surface deviation" on the outer surface of the spherical member and the "corresponding surface deviation" on the inner surface of the spherical casing face one another *within the inner volume of the game ball*. Neither surface deviation would be exposed to the outer surface of the claimed game ball. This is directly contrary to the "dimples 44" and the remaining outer surface of the "outer shell" in U.S. Patent No. 6,042,487 to Schrimmer et al.

From the Detailed Actions of 6/20/2007 and 10/24/2007, it is apparent that the Office interpreted Applicant's claim limitations as specifying surface deviations to the *outside* surface of the game ball. For example, on page 3 of the 10/24/2007 Action, the Office wrote that it would have been obvious to combine U.S. Patent No. 5,066,011 to Dykstra et al. and Schrimmer "to include dimples ... to provide a ball with a specific aerodynamic to the ball and also to invent a ball that looks and feels very similar to the common and already known types of balls" It is most

respectfully submitted that this logic is simply incorrect. Since Applicant's claimed surface deviations are entirely *interior* to the game ball, they have no effect on the aerodynamics or the appearance of the ball, and such factors are irrelevant to their purpose.

Instead, the claimed surface deviations and corresponding surface deviations are disposed in a facing, mating relationship interiorly between the *spherical* member and *spherical* casing within the game ball to prevent relative movement between the spherical member and the spherical casing. Schrimmer's dimples on the outside surface of the ball would teach one skilled in the art nothing with respect to Applicant's claimed surface deviation arrangement.

Furthermore, the Office also apparently misunderstood the claimed spherical member of the core structure. In the 10/24/2007 Detailed Action's "Response to Arguments", it was written, "[i]n response to applicant's argument regarding claims 1 and 47 that Schrimmer teaches a disc and not a spherical member, the examines [sic] points out that Schrimmer discloses an illuminated golf ball, and golf balls are well known to be spherical and not a disc as argued by the applicant." Detailed Action, pp. 12-13. Again, the Office apparently mistook what is being claimed and argued. In discussing Schrimmer, the Applicant was not asserting that the ball in Schrimmer had a disk shape; its outer surface is undeniably spherical. Instead, the Applicant correctly noted that the "core portion 34"—the portion housed within the "shell portion 40"—in Schrimmer is disk shaped as can be plainly seen in the perspective view of FIG. 1. This is in direct opposition to the claimed spherical member that forms Applicant's core structure.

Indeed, by teaching a disk-shaped core portion, Schrimmer teaches away from the claimed game ball with a core structure "comprising a spherical member". As previously noted, the

difference is more than one merely of form since a game ball with Schrimmer's disk shaped "core portion 34" would perform differently than a game ball with Applicant's claimed "spherical member" core structure.

Therefore, it is most respectfully submitted that the Office's rejection of independent claims 1 and 47 and the claims depending therefrom was founded on an apparent misunderstanding of Applicant's claim limitations. Neither Schrimmer, Dykstra, nor any combination thereof would render obvious providing surface deviations on an outer surface of an enveloped spherical member and mating surface deviations on an inner surface of a spherical casing for maintaining the member and the casing in relative position. Accordingly, it is respectfully submitted that claims 1 and 47 must be considered patentable over the cited art. Put simply, the Office's rejection of claims 1 and 47 is ill founded and unsupportable.

In his response of 01/18/2008, the Applicant also submitted that, because the claims and the prior art were misunderstood and misapplied, the finality of the 10/24/2007 Office Action was premature. However, the Office did not retract the finality of the rejection of Applicant's claims and merely issued an Advisory Action on 01/31/2008 refusing entry of Applicant's proposed claim amendments.

Independent Claim 33

The appealed rejection of independent claim 33 is equally without proper basis. In the Action of 10/24/2007, the Office made the conclusory statements that Schrimmer's "elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact

game ball (figs.1-3)” and that “the switching arrangement further comprises a rechargeable means for retaining power whereby the elongate probe can be employed to recharge the means for retaining power (see figs. 1-3, lines 14-49).” However, the Office failed to provide articulated reasoning for how the elongate probe in Schrimmer can possibly be employed to provide or transmit power.

As emphasized in the Office’s “Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*”¹, a proper rejection under 35 U.S.C. 103 must have a “clear articulation of the reason(s) why the claimed invention would have been obvious.” *Id.* at 57528. Mere conclusory statements cannot properly support an obviousness rejection, which must instead be founded on “‘articulated reasoning with some rational underpinning’”. *Id.* at 57528-9².

Not only does Schrimmer not teach “a means for passing power through the elongate probe whereby the elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact game ball” as is claimed by the Applicant, Schrimmer actually provides affirmative evidence that the Office’s position is incorrect. Schrimmer unequivocally proves that the Office’s position is untenable where it is written that one can “turn off or deenergize the LEDs 14, 16” by inserting “the **non-conductive plunger 36**” into the “opening 42 in the outer shell 40”. Col, 5, lines 44-47. (Emphasis supplied.) A non-conductive plunger by definition cannot transmit power. Indeed, As such, the plunger 36 *could not possibly* be employed to provide power to the switching arrangement from exterior to the ball as claim 33 demands.

Since the rejection of claim 33 is not well founded, the Applicant urges the Office to overturn

1 Federal Register, Vol. 72, No. 195, p. 57526-57535, October 10, 2007.

2 *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 127 S. Ct. 1727 (2007) (citing *In re Kahn*, 441 F.3d 977, 988,

the Examiner's rejection and to allow claim 33 and each claim depending therefrom.

Applicant's Dependent Claims

The Applicant submits that each dependent claim is allowable not only because depends from an allowable base claim but also because each dependent claim adds further patentable limitation thereto. By way of example and not limitation, a plurality of notable dependent claims are discussed below.

- **Claims 25 and 40**

In the Office's 10/24/2007 Response to Applicant's Arguments respecting claims 25 and 40, the Office admitted that Kumasaka "does not teach an aerogel" but asserted that Kumasaka's teaching of foam being used in the production of a ball renders Applicant's claims 25 and 40 obvious since "according to the description and definition of an aerogel, it is a type of foam that is clear, solid, and lightweight." Detailed Action, p. 13. It seems to be the Office's position, therefore, that Kumasaka's disclosure of foam as a genus automatically renders the very particular and uniquely advantageous aerogel obvious.

The Office's rejection is founded on aerogel being properly classified as a foam. However, Merriam-Webster's Online Dictionary defines "foam" as "material in a lightweight cellular form resulting from introduction of gas bubbles during manufacture". As defined in the American Heritage Dictionary, an "aerogel" is a "highly porous solid formed from a gel, such as silica gel, in which the liquid is replaced with a gas." As such, with each term properly defined, an aerogel is not

78 USPQ2d 1329, 1336 (Fed. Cir. 2006)).

a foam. With that, the rejection of claims 25 and 40 is improper at its very basis.

Even assuming, *arguendo*, that aerogel is a species of foam, the Office's rejection is improper. As noted in MPEP § 2144.08, "[t]he fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness." (citing *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994)). To be proper, a rejection of a species where a genus is disclosed by the prior art demands express findings and consideration of (a) the size of the genus, (b) the express teachings of the prior art, (c) the teachings of structural similarity, (d) the teachings of similar properties or uses, (e) the predictability of the technology, and (f) any teachings that would lead one skilled in the art to select the species or subgenus. MPEP § 2144.08.

Here, the Office found aerogel obvious based on the mere disclosure of foam with no supporting analysis. The Office's rejection of claims 25 and 40 is thus insufficient under proper patent practice. Furthermore, it is respectfully submitted that even a complete consideration of the aforementioned factors compels the conclusion that, even assuming the disclosure of foam as a genus, aerogel would not be obvious to one skilled in the art since, among other reasons, there are numerous types of foam, there do not appear to be any teachings of similar uses of aerogel, and there are no other known factors that would lead one skilled in the art to employ aerogel as specifically claimed by the applicant. Therefore, for these further reasons, the Office's rejection of claims 25 and 40 was improper and should be overturned.

- **Claims 26-28**

Regarding claims 26-28, the 10/24/2007 Office Action continued the Office's rejections

based on the assertion that Shrimmer discloses a luminescent layer because the “light emission according to Schrimmer is not caused by heat but simply by mechanical and electrical energy.” Detailed Action, p. 13. This position is unsupportable and contrary to the facts. “Luminescence”, as defined by the American Heritage® Dictionary of the English Language: Fourth Edition, is “[t]he emission of light that does not derive energy from the temperature of the emitting body, as in phosphorescence, fluorescence, and bioluminescence. Luminescence is caused by chemical, biochemical, or crystallographic changes, the motions of subatomic particles, or radiation-induced excitation of an atomic system.”

However, light in Schrimmer is unequivocally generated by lighting elements comprising “light emitting diodes 14, 16 (LEDs)”. Col. 3, lines 59-65. LEDs do not exhibit luminescence but instead emit light through the application of electricity, with heat being conducted from their P-N junction. Schrimmer has no disclosure whatsoever of luminescence. Therefore, it cannot be used to support a rejection of claims 26-28, which require “a luminescent layer” and then that the layer comprises a sub-layer and an outer layer. With no prior art teaching that could reasonably be said to teach or render obvious Applicant’s claimed luminescent layer, the Applicant respectfully submits that claims 26-28 are independently patentable.

- **Claims 2-5**

Claims 2-4 refine claim 1 in requiring that the at least one surface deviation disposed relative to the spherical member of the core structure “comprises a rigid registration projection”, then that the surface deviation “comprises a rigid post”, and further that there are a plurality of rigid registration projections. Still further, claim 5 requires that each registration projection comprises a

“metal post”. Claim 49 also requires a rigid registration projection.

Schrimmer would most accurately be read to teach one skilled in the art away from the claimed “rigid registration projections”. In Schrimmer, the “connectors 22, 24” are expressly and repeatedly described as being “flexible”. Indeed, the flexibility of the “connectors 22, 24” is critical to their performance under Schrimmer’s invention to allow the “connectors 22, 24” to deflect in response to the insertion of the “plunger 36”. Notably, since Schrimmer’s core structure is not spherical as Applicant’s claims demand, Schrimmer would not need rigid registration projections to prevent relative movement of the “core portion 34” and the “outer shell 40”. Schrimmer cannot in fairness be said to render a structure with a plurality of rigid metal posts obvious, particularly in light of the remaining limitations in claims 2-4 directly or by dependency.

- **Claim 8**

Claim 8 requires that “the light source is activated for a pre-determined time period after the impact” and is additionally patentable over even the combined references of Schrimmer and Dykstra. Since it is switched on and off by the “plunger 36”, it is clear that Schrimmer does not have an impact activated light source. Furthermore, Dykstra merely exhibits only a momentary flash of light and emission of sound. Under Dykstra, in the event of a jolt, “both the flashtube 24 and sound annunciator 26 [are] momentarily (and simultaneously) activated. The net result is that there is a short flash of light as well as a sound.” Col. 2, lines 39-42. To the contrary, claim 8 requires that the light source be activated “for a pre-determined time period *after* the impact”, which is neither taught nor rendered obvious by Schrimmer and Dykstra, even when combined. Dykstra would instead teach one skilled in the art to induce only a simultaneous, momentary light activation, which is

contrary to that claimed by the Applicant.

- **Claims 10-14, 45, 46, 51, and 52**

Claims 10 through 14 also enjoy independent patentability. Again pointing specifically to Paragraph 0019 and notwithstanding Applicant's earlier arguments, the Office found on 10/24/2007 that U.S. Patent Application Publication No. 2005/0005873 of Gick discloses Applicant's remote activation by disclosing activation with "means for sensing a sound signal / *sound from vibration ...* ." However, this is simply not the case. Gick does not contemplate remote activation signals and merely discloses that the toy can "respond to the slight movement (such as that caused by a gentle push or rocking) or vibration (such as that caused by striking a surface upon which the toy rests or by an animal walking near the toy)." Gick, Para. 0019. Neither of these activations is remote; both require the imparting of movement *directly* to the toy. Gick never teaches or suggests remote activation of any kind and certainly does not contemplate infrared or sound activation. As such, Gick cannot properly support a rejection of claims 10 through 14. These arguments apply with equal force to claims 45, 46, 51, and 52.

While the Office summarily concluded that Tinsman (U.S. 2002/0173378) discloses Applicant's claimed infrared activation signal of claim 11 and amended claims 45 and 51 and the sound signal activation of claims 12, 46, and 52, there is no such disclosure in the reference. The Applicant's careful review of the Tinsman disclosure shows that infrared activation and sound activation are nowhere disclosed or even suggested. To find otherwise simply represents impermissibly adding teachings to the prior art that do not exist. As noted previously, the Office's Examination Guidelines issued in light of KSR International Co. v. Teleflex Inc., mere conclusory

statements without articulated reasoning are insufficient to support an obviousness rejection. The Applicant urges the Office to reconsider its rejections and allow Applicant's claims.

- **Claims 15-17 and 57**

It is further submitted that claims 15-17 and 57 are not anticipated or rendered obvious by even the combined references of Schrimmer, Dykstra, Faulkner, and Tinsman. Tinsman's "sound pipes 40" do not teach or render obvious Applicant's claimed "positioning stays" of claims 15-17 and the method for employing the same of claim 57. There is no disclosure in Tinsman of even how the "sound pipes 40" are formed. Indeed, it would appear from Tinsman's drawings that the sound pipes are mere negative formations in the structure, which could not correspond to or even suggest Applicant's rigid positioning stays. Even more clearly, since Tinsman merely describes the "sound pipes 40" as being used for transmitting sound, it cannot properly be read to teach or suggest Applicant's carefully claimed *method steps* of claim 57 where the positioning stays are employed to maintain the core structure concentric with the spherical casing.

Furthermore, the Office's rejections of 10/24/2007 were founded on new prior art with no amendments to Applicant's claims. Therefore, it is again submitted that the finality of the Office's Action was premature.

- **Claims 19-21 and 59**

It does not appear that the Office particularly addressed the patentability of claims 19-21 or 59, which require "a plurality of interior surface deviations disposed on the inner surface of the spherical shell and a plurality of corresponding exterior surface deviations disposed on the outer surface of the spherical casing whereby relative movement between the spherical shell and the

spherical casing is prevented.” These claims thus require a spherical core member with outer surface deviations, a spherical casing with inner surface deviations and outer surface deviations, and a spherical shell with inner surface deviations. There is simply nothing in the prior art that can reasonably be said to teach or suggest such a claimed ball structure, and the Office has not even attempted to address the same. The same arguments apply to amended claim 59. Therefore, it is submitted that claims 19-21 and 59 enjoy further patentability.

Conclusion

The cited art neither discloses nor renders the claimed invention obvious. Therefore, the Applicant most respectfully submits that the claims presented are patentable over the cited art. With this in mind, the Office's reconsideration and allowance of the specification and claims 1-35 and 37-62 are respectfully requested.

(VIII) *Claims appendix.*

--1. A high impact game ball comprising:

- a core structure comprising a spherical member with an outer surface;
- a spherical casing concentrically disposed relative to the spherical member of the core structure wherein the spherical casing has an inner surface and an outer surface;
- at least one surface deviation disposed relative to the outer surface of the spherical member of the core structure;
- at least one corresponding surface deviation disposed relative to the inner surface of the spherical casing in a mating relationship with the at least one surface deviation disposed relative to the spherical member of the core structure whereby the at least one surface deviation and the at least one corresponding surface deviation are interposed between the spherical member of the core structure and the spherical casing.

2. The high impact game ball of claim 1 wherein the at least one surface deviation disposed relative to the spherical member of the core structure comprises a rigid registration projection and wherein the at least one surface deviation disposed relative to the spherical casing comprises a registration indentation that corresponds to the registration projection.

3. The high impact game ball of claim 2 wherein the registration projection comprises a rigid post that projects from the spherical member of the core structure and into the registration indentation of the spherical casing.

4. The high impact game ball of claim 2 wherein there are a plurality of rigid registration projections that project from the spherical member of the core structure and into corresponding registration indentations of the spherical casing.

5. The high impact game ball of claim 4 wherein each of the plurality of registration projections comprises a metal post.

6. The high impact game ball of claim 1 further comprising a switching arrangement embedded in the spherical member of the core structure wherein the switching arrangement comprises a means for sensing an activation condition relative to the switching arrangement, a means for triggering a response upon an occurrence of the activation condition, and a means for exhibiting the response based on the occurrence of the activation condition.

7. The high impact game ball of claim 6 wherein the means for sensing an activation condition comprises a means for sensing an impact relative to the high impact game ball.

8. The high impact game ball of claim 7 wherein the means for exhibiting a response based on the occurrence of the activation condition comprises a light source for being activated in response to an impact relative to the high impact game ball wherein the light source is activated for a pre-determined time period after the impact.

9. The high impact game ball of claim 7 wherein the means for exhibiting a response based on the occurrence of the activation condition comprises a sound source for being activated in response to an impact relative to the high impact game ball wherein the light source is activated for a pre-determined time period after the impact.

10. The high impact game ball of claim 6 wherein the means for sensing an activation condition comprises a means for sensing a remote activation signal whereby the response can be caused to be exhibited by a remote activation signal.

11. The high impact game ball of claim 10 wherein the means for sensing an activation condition comprises a means for sensing an infrared activation signal.

12. The high impact game ball of claim 10 wherein the means for sensing an activation condition comprises a means for sensing a sound signal.

13. The high impact game ball of claim 10 wherein the means for exhibiting a response based on the occurrence of the activation condition comprises a light source for being activated in response to a remote activation signal.

14. The high impact game ball of claim 10 wherein the means for exhibiting a response based on the

occurrence of the activation condition comprises a sound source for being activated in response to a remote activation signal.

15. The high impact game ball of claim 1 further comprising a plurality of positioning stays wherein each positioning stay has a proximal end coupled to the spherical member of the core structure, a body portion, and a distal end and wherein each positioning stay projects from the spherical member of the core structure an amount substantially equal to a radial thickness of the spherical casing whereby the plurality of positioning stays can ensure a concentric relationship between the spherical member of the core structure and the spherical casing.

16. The high impact game ball of claim 15 wherein each of the plurality of positioning stays comprises a generally rigid strand of material that projects radially from the spherical member of the core structure.

17. The high impact game ball of claim 16 wherein the spherical casing is formed by injection molding.

18. The high impact game ball of claim 1 further comprising a spherical shell disposed to envelope the spherical casing and the core structure wherein the spherical shell has an inner surface and an outer surface.

19. The high impact game ball of claim 18 further comprising a plurality of interior surface deviations disposed on the inner surface of the spherical shell and a plurality of corresponding exterior surface deviations disposed on the outer surface of the spherical casing whereby relative movement between the spherical shell and the spherical casing is prevented.

20. The high impact game ball of claim 19 wherein the spherical shell has a generally smooth exterior surface.

21. The high impact game ball of claim 19 further comprising a plurality of exterior surface deviations disposed on the spherical shell.

22. The high impact game ball of claim 18 wherein the spherical member of the core structure is formed from a polycarbonate resin under a high pressure injection molding process, wherein the spherical casing is formed from a high density silicone under an injection molding process, and wherein the spherical shell is formed under an injection molding process.

23. The high impact game ball of claim 1 further comprising a lightweight spherical layer with a specific gravity of less than 1.

24. The high impact game ball of claim 23 wherein the high impact game ball has a specific gravity of not greater than 1.

25. The high impact game ball of claim 23 wherein the lightweight spherical layer comprises an aerogel.

26. The high impact game ball of claim 1 further comprising a luminescent layer for enabling the high impact game ball to emit light.

27. The high impact game ball of claim 26 wherein the luminescent layer comprises a sub-layer.

28. The high impact game ball of claim 26 wherein the luminescent layer comprises an outer layer.

29. The high impact game ball of claim 6 further comprising an access conduit with a proximal end adjacent to the switching arrangement and a distal end in communication with an exterior surface of the high impact game ball.

30. The high impact game ball of claim 29 wherein the means for sensing an activation condition relative to the switching arrangement comprises a switch disposed adjacent to the proximal end of the access conduit.

31. The high impact game ball of claim 30 further comprising an elongate probe adapted to be received into the access conduit for triggering the switch of the switching arrangement whereby the

elongate probe can be employed to induce an activation condition.

32. The high impact game ball of claim 29 further comprising an elongate probe adapted to be received into the access conduit and a means for passing power through the elongate probe whereby the elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact game ball.

33. A game ball comprising:

- a spherical member;

- a switching arrangement embedded in the spherical member wherein the switching arrangement comprises a means for sensing an activation condition relative to the switching arrangement, a means for triggering a response upon an occurrence of the activation condition, and a means for exhibiting the response based on the occurrence of the activation condition;

- an elongate probe adapted to be received into the access conduit;

- a means for passing power through the elongate probe whereby the elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact game ball;

- and

- an access conduit with a proximal end adjacent to the switching arrangement and a distal end in communication with an exterior surface of the game ball.

34. The game ball of claim 33 wherein the means for sensing an activation condition relative to the

switching arrangement comprises a switch disposed adjacent to the proximal end of the access conduit.

35. The game ball of claim 34 further comprising an elongate probe adapted to be received into the access conduit for triggering the switch of the switching arrangement whereby the elongate probe can be employed to induce an activation condition.

36. (canceled).

37. The game ball of claim 36 wherein the switching arrangement further comprises a rechargeable means for retaining power whereby the elongate probe and the means for passing power through the elongate probe can be employed to recharge the means for retaining power.

38. The game ball of claim 33 further comprising a lightweight spherical layer that envelopes the spherical member wherein the lightweight spherical layer has a specific gravity of less than 1.

39. The game ball of claim 38 wherein the game ball has a specific gravity of not greater than 1.

40. The game ball of claim 38 wherein the lightweight spherical layer comprises an aerogel.

41. The game ball of claim 33 further comprising a luminescent layer that envelopes the spherical member for enabling the game ball to emit light.

42. The game ball of claim 33 wherein the means for sensing an activation condition comprises a means for sensing an impact relative to the game ball.

43. The game ball of claim 42 wherein the means for exhibiting a response based on the occurrence of the activation condition comprises a light source for being activated in response to an impact relative to the game ball.

44. The game ball of claim 33 wherein the means for exhibiting a response based on the occurrence of the activation condition comprises a sound source for being activated in response to an activation condition.

45. The game ball of claim 33 wherein the means for sensing an activation condition comprises a means for sensing a remote activation signal whereby the response can be caused to be exhibited by a remote activation signal.

46. The game ball of claim 33 wherein the means for sensing an activation condition comprises a means for sensing a sound signal.

47. A method for constructing a high impact game ball comprising the following steps:

forming a spherical member to form a core structure wherein the spherical member has an outer surface;

forming a spherical casing to envelop the spherical member of the core structure in a concentric relationship wherein the spherical casing has an inner surface and an outer surface;

forming at least one surface deviation relative to the outer surface of the spherical member of the core structure;

forming at least one corresponding surface deviation relative to the inner surface of the spherical casing wherein the at least one corresponding surface deviation relative to the spherical casing is disposed in a mating relationship with the at least one surface deviation disposed relative to the spherical member of the core structure whereby the at least one surface deviation and the at least one corresponding surface deviation are interposed between the spherical member of the core structure and the spherical casing.

48. The method of claim 47 wherein the step of forming a spherical casing is carried out in an injection molding process and includes cooling the spherical casing by an active cooling method.

49. The method of claim 47 wherein the step of forming at least one surface deviation relative to the spherical member of the core structure comprises forming a rigid registration projection and wherein the step of forming at least one corresponding surface deviation disposed relative to the spherical casing comprises forming a registration indentation that corresponds to the rigid registration

projection.

50. The method of claim 47 further comprising the step of embedding a switching arrangement in the spherical member of the core structure wherein the switching arrangement comprises a means for sensing an activation condition relative to the switching arrangement, a means for triggering a response upon an occurrence of the activation condition, and a means for exhibiting the response based on the occurrence of the activation condition.

51. The method of claim 50 wherein the means for sensing an activation condition comprises a means for sensing a remote activation signal whereby the response can be caused to be exhibited by a remote activation signal.

52. The method of claim 50 wherein the means for sensing an activation condition comprises a means for sensing a sound signal.

53. The method of claim 50 further comprising the step of forming an access conduit with a proximal end adjacent to the switching arrangement and a distal end in communication with an exterior surface of the game ball.

54. The method of claim 53 wherein the means for sensing an activation condition relative to the switching arrangement comprises a switch disposed adjacent to the proximal end of the access

conduit.

55. The method of claim 54 further comprising the step of providing an elongate probe adapted to be received into the access conduit for triggering the switch of the switching arrangement whereby the elongate probe can be employed to induce an activation condition.

56. The method of claim 53 further comprising the steps of providing an elongate probe adapted to be received into the access conduit and a means for passing power through the elongate probe whereby the elongate probe can be employed to provide power to the switching arrangement from exterior to the high impact game ball.

57. The method of claim 47 further comprising the step of disposing a plurality of positioning stays projecting from the spherical member of the core structure wherein each positioning stay has a proximal end coupled to the spherical member of the core structure, a body portion, and a distal end and wherein each positioning stay projects an amount substantially equal to a radial thickness of the spherical casing wherein the step of disposing the plurality of positioning stays occurs before the step of molding the spherical casing whereby the plurality of positioning stays ensure a concentric relationship between the spherical member of the core structure and the spherical casing.

58. The method of claim 47 further comprising the step of forming a spherical shell disposed to envelope the spherical casing and the core structure wherein the spherical shell has an inner surface

and an outer surface.

59. The method of claim 58 further comprising the step of forming a plurality of interior surface deviations relative to the inner surface of the spherical shell and a plurality of corresponding exterior surface deviations relative to the exterior surface of the spherical casing whereby relative movement between the spherical shell and the spherical casing is prevented.

60. The method of claim 58 wherein the spherical member is formed from a polycarbonate resin under a high pressure injection molding process, wherein the spherical casing is formed from a high density silicone under an injection molding process, and wherein the spherical shell is formed under an injection molding process.

61. The method of claim 47 further comprising the step of forming a lightweight spherical layer with a specific gravity of less than 1.

62. The method of claim 47 further comprising the step of forming a luminescent layer for enabling the high impact game ball to emit light.--

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(IX) *Evidence appendix.*

None.

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(x) *Related proceedings appendix.*

None.

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Respectfully Submitted,

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